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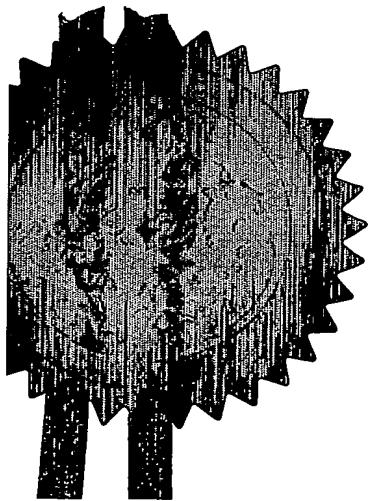
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I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

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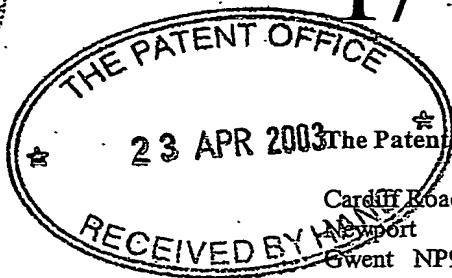


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23 APR 2003

Request for grant of a patent

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23 APR 2003 The Patent Office

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1. Your reference	P/2268.GB/CJW		
2. Patent application number <i>(The Patent Office will fill in this part)</i>	0309236.8	24APR03 E802140-1 D10119 P01/7700 0.00-0309236.8	
3. Full name, address and postcode of the applicant or of each applicant <i>(underline all surnames)</i>	Braitrim (UK) Ltd Braitrim House 98 Victoria Road London NW10 6NB		
- Patents ADP number <i>(if you know it)</i> If the applicant is a corporate body, give the country/state of its incorporation	UNITED KINGDOM 6728034001		
4. Title of the invention	GARMENT HANGER		
5. Name of your agent <i>(if you have one)</i> "Address for service" in the United Kingdom to which all correspondence should be sent <i>(including the postcode)</i>	Harrison Goddard Foote 40 - 43 Chancery Lane LONDON WC2A 1JA ADP No. 08530842001		
Patents ADP number <i>(if you know it)</i>	08530842001 ✓		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and <i>(if you know it)</i> each application number	Country	Priority Application Number <i>(if you know it)</i>	Date of Filing <i>(day / month / year)</i>
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application		Date of filing <i>(day / month / year)</i>
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? <i>(Answer 'Yes' if:</i>	Yes		
a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body See note (d)			

Patents Form 1/77

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Description **8** *PL*

Claim(s) **TO FOLLOW**

Abstract **TO FOLLOW**

Drawings(s) **5** *TS*

10. If you are also filing any of the following, state how many against each item.

Priority documents **Zero**

Translations of priority documents **Zero**

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*) **1** *✓*

Request for preliminary examination and search (*Patents Form 9/77*) **Zero**

Request for substantive examination (*Patents Form 10/77*) **Zero**

Any other documents **Zero**
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11. I/We request the grant of a patent on the basis of this application.

Signature *Wildman Harrold* Date 23 Apr 2003
WILDMAN, HARROLD, ALLEN & DIXON

12. Name and daytime telephone number of person to contact in the United Kingdom

CLIFFORD J. WANT **020 7831 0009**

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GARMENT HANGER.

This invention relates to a garment hanger.

Moulded garment hangers for, for example, suits and jackets are known. In such known hangers, arms and a central suspension portion linking the arms are a one-piece moulding and the hangers typically have an inverted U-shaped transverse cross-section with the arms racked forward. Back and front faces of the hanger are substantially parallel or diverge in a vertical direction in use to allow removal of a core of a moulding tool used in their manufacture from the arms and central suspension portion. As a result, in use a centre of gravity of the hanger and a suspended garment aligned below the suspension hook tends to tip the hanger forward so that a lower back edge of the hanger is pushed into the suspended garment, that is, in use the rear face of the hanger tends to be inclined to the vertical with the lower edge protruding into a garment suspended on the hanger. This tends to mark the garment. Such hangers are also subject to twisting under torsion when loaded with a garment.

Attempts have been made to mitigate these disadvantages by raising a split line joining an upper and lower half of an injection mould used to mould a hanger having an inverted U-shaped cross-section and providing an inward curving portion of the hanger below the split line. That is, the split line may be raised to some 5 mm above a bottom edge of the hanger compared with a normal 1 or 2 mm. However, a radius of the inward curving portion is limited by a thickness of walls of the hanger, since an inward curving portion comprising an undercut would prevent removal of the hanger from the mould, and therefore it is not possible to provide a suitable curvature to overcome the problem of the lower edge of the hanger marking the garment. Attempts have also been made to overcome these disadvantages by blow moulding hollow garment hangers. However, blow moulded hangers tend to have greatly varying wall thicknesses throughout the hanger, which are difficult to control. It is therefore difficult to ensure that greatest thicknesses occur where greatest strength is required. There are also difficulties with blow moulded hangers of incorporating bosses for receiving a suspension hook of the hanger.

Solid wooden hangers without protruding edges are known, but are relatively expensive compared with moulded garment hangers of plastics material.

It is an object of the present invention at least to ameliorate the aforesaid disadvantages in the prior art.

According to a first aspect of the invention there is provided a garment hanger having at least one arm connected to a suspension portion, the garment hanger comprising a first moulded portion, forming a first proportion of the at least one arm and suspension portion, mated and joined to a second moulded portion, forming a remaining second proportion of the at least one arm and suspension portion, to form a hollow, enclosed structure.

5 Preferably, the garment hanger is a monocoque structure.

Advantageously, the first proportion is substantially a half.

Conveniently, in use, the first portion is an upper portion of the hanger and the
10 second portion is a lower portion of the hanger.

Alternatively, in use, the first portion is a front or rear portion of the hanger and the second portion is a rear or front portion of the hanger, respectively.

Conveniently, the first portion is welded to the second portion.

Optionally, the first portion is joined to the second portion by adhesive.

15 Optionally, the first portion is joined to the second portion by cooperating clip means on the first portion and the second portion.

Advantageously, the hanger comprises bar means substantially horizontal in use for supporting a garment thereby.

Preferably, the bar means comprises an extruded bar.

20 Advantageously, the bar means comprise a bar at least partially coated with a non-slip material having a higher coefficient of friction than material of the bar.

Preferably, the bar is coated on an upper, in use, surface.

Advantageously, the bar is coated on at least one substantially vertical, in use, surface.

25 Advantageously, the garment hanger has two opposed arms and the bar means passes through apertures in the opposed arms of the hanger such that opposed ends of the bar means are each located within the hanger between the first portion and the second portion.

Conveniently, an upper face of the bar means is substantially convex and a lower face is substantially planar.

Advantageously, the garment hanger comprises two opposed arms and loop means for supporting a garment thereby.

Conveniently, the loop means comprise a respective loop in a respective cavity in each of the opposed arms.

5 Advantageously, the garment hanger comprises bar means and the loop means comprise a respective loop in respective cavities in the bar means proximate respective opposed ends of the bar means.

Advantageously, the hanger is at least partially of translucent or transparent material.

Preferably, the garment hanger comprises alignment means for aligning the first
10 portion with the second portion for joining the first portion to the second portion.

According to a second aspect of the invention, there is provided a method of manufacturing a garment hanger having at least one arm connected to a suspension portion, comprising the steps of: moulding a first portion of the garment hanger comprising a first proportion of the at least one arm and suspension portion; moulding a second portion of the
15 garment hanger comprising a remaining second proportion of the at least one arm and suspension portion; and joining the first portion to the second portion to form a hollow enclosed structure.

Preferably, the first proportion is substantially one half.

Preferably, the step of joining the first portion to the second portion forms a
20 monocoque structure.

Conveniently, the step of joining the first portion to the second portion includes at least one of adhering, welding or connecting with cooperating clip means located on the first portion and the second portion.

Advantageously, the garment hanger has two opposed arms and the method
25 comprises further steps of: providing apertures proximate outer extremities of the second portion; providing bar means; and inserting the bar means through the apertures such that when the first portion is joined to the second portion opposed ends of the bar means are located between the first portion and the second portion.

Conveniently, the step of providing bar means comprises extruding a bar.

Preferably, the step of extruding the bar includes co-extruding a non-slip coating on the bar.

The invention will now be described, by way of example, with reference to the accompanying drawings in which:

5 Figure 1 is an exploded view of a garment hanger according to the invention;

Figure 2 is an enlarged view of part B of the hanger of Figure 1;

Figure 3 is a perspective view of the hanger of Figure 1;

Figure 4 is a top view of the hanger of Figure 1;

Figure 5 is an end view of the hanger of Figure 1;

10 Figure 6 is a front view of the hanger of Figure 1;

Figure 7 is an enlarged transverse cross-section along line A-A of Figure 6 in a direction of the arrow-headed lines;

Figure 8 is an enlarged perspective view of a clip, in an open position, suitable for joining the upper and lower portions of the hanger of Figure 1; and

15 Figure 9 is an enlarged perspective view of the clip of Figure 8, in a closed position.

In the Figures, like reference numerals denote like parts.

A garment hanger 10 according to the invention, as shown in Figures 1 to 7, has an upper portion 20 and a lower portion 40, which together form a central suspension portion 11 and opposed arms 12, 13 of the hanger. The upper portion is of a substantially similar shape to a known one-piece moulded hanger. That is, the arms are inclined downwards from the horizontal in a direction away from the central suspension portion, are raked forward and have somewhat bulbous extremities. That is, as best seen in Figures 4 and 5, a front face of the hanger is concave and a rear face of the hanger is convex, to follow a shape of shoulders of a garment to be supported by the hanger. Upper faces of the arms are joined to an upper face of the central suspension portion by an upwardly concave portion and a lower face of the central suspension portion is downwardly concave.

20 The upper portion 20 forms substantially half of the central suspension portion and substantially half of each of the opposed arms and the lower portion 40 comprises the remaining proportions of the central suspension portion and each of the opposed arms.

25 The upper portion 20 forms substantially half of the central suspension portion and substantially half of each of the opposed arms and the lower portion 40 comprises the remaining proportions of the central suspension portion and each of the opposed arms.

However, the upper and lower portions of the hanger may comprise different proportions of the hanger than substantially one half.

Extremities of the arms 12, 13 are joined by a trouser or skirt bar 50. However, a hanger according to the invention does not necessarily have such a bar. As shown in Figure 5 3, the hanger is provided with a suspension hook 60 by which the hanger may be suspended, a shank of which suspension hook is joined by a boss 61 to the central portion 11.

As best seen in Figure 7, and to some extent in Figure 1, the upper portion 20 has a substantially inverted U-shaped transverse cross-section and the lower portion 40 has a 10 substantially U-shaped transverse cross-section such that a peripheral edge 21 of the upper portion 20 mates with a peripheral edge 41 of the lower portion 40. As shown in Figure 7, the peripheral edges 21, 41 are joggled or dog-legged to improve mating engagement and location of the upper portion 20 with the lower portion 40.

Referring to Figures 1 and 2, round-end slots 42, having a vertical projection 15 corresponding to a transverse cross-section of the skirt or trouser bar 50, are provided in a lower face 43 of the lower portion 40, proximate outer extremities of the arms 12, 13, to receive respective opposed ends of the bar 50.

With opposed ends of the bar 50 located in the respective slots 42, the upper portion 20 is welded or joined by adhesive to the lower portion 40. Alternatively the upper portion 20 is fastened by clips to the lower portion 40.

A suitable clip 80 is illustrated in Figures 8 and 9, substantially enlarged with respect to Figure 1 for clarity, the clip having, as illustrated, a lower male portion 81 and an upper female portion 82. The male portion 81 has a resilient tang 811 with a shoulder 812 for engaging an edge 822 of a notch 821 in the female portion 82.

Opposed outer portions 813 of a mating edge of the male portion 81, both sides of the resilient tang 811, are rebated to form dog-legs for mating with co-operating rebated mating edge portions 823 of the female portion 82. The female portion 82 is provided with an indentation 824 between the rebated portions 823 of the mating edge to bridge a non-rebated central portion of the mating edge of the male portion corresponding with a 30 location of the central tang 811. The tang 811 is located on an outer face 815 of the male portion 81 and has a projecting portion projecting beyond the mating edge such that an inner face of the projecting portion is substantially coplanar with the outer face 815 of the

male portion 81. The inner face of the projecting portion is provided proximate an end of the projecting portion remote from remaining portions of the male portion 81 with the shoulder 812 and a ramped cam surface 816, tapering away from the shoulder 812 in a direction away from the mating edge of the male portion 81.

5 The female portion 82 is provided with a channel 826 for receiving the projecting portion of the tang 811, terminated remotely from the mating edge of the female portion with a cam portion 827 for cooperating with the cam portion 816 of the tang 811. Inward of the cam 827, and separated therefrom by a bridge 828 of an outer face 825 of the female portion 82, there is provided the notch 821 for receiving both the shoulder 812 and a portion of the cam portion 816 of the tang 811.

10 The clip 80 is further provided with two guide posts 819, 829. A first guide post 819 is located on the outer face 815 of the male portion 81 parallel to, and on a first side of, the tang 811 and projects from the outer face 815 past the mating edge of the male portion towards the outer face 825 of the female portion 82 as the male and female portions are brought together. The second guide post 829 is located on the outer face 825 of the female portion and extends beyond the mating edge of the female portion, such that the second guide post 829 projects towards the male portion, on a second side of the tang 811 opposed to the first side, as the male and female portion are brought together. Inner faces 8191, 8291 of the projecting portions of the first and second guide posts 819, 829 respectively are tapered away from the respective faces 825, 815 with which they engage respectively.

15 In use, as the male and female portions 81, 82 are brought together, the tapered faces 8191, 8291 of the guide posts 819, 829 engage the outer faces 825, 815 of the opposing portion respectively to align the male portion with the female portion. As the female and male portions are brought closer together in alignment the projecting portion of the tang 811 engages and slides along the channel 826 in the outer face 825 of the female portion 82 until the cam surface 816 of the tang 811 engages the terminal cam surface 827 of the channel 826. The cam surfaces 816, 827 cooperate to raise the cam portion of the tang 811 resiliently to the outer face 825 of the female portion 825 to cross the bridging portion 828 of the outer face of the female portion between the channel 826 and the notch 821 until a portion of the cam portion of the tang 811 resiliently enters the notch 821 and the shoulder 812 lockingly engages the edge 822 of the notch 821, which edge 822 is substantially perpendicular to the outer face 825 of the female portion. Substantially simultaneously the

rebated mating edge portions 823 of the female portion engage the rebated mating edge portions 813 of the male portion 81.

With the first portion 20 and second portion 40 of the garment hanger joined together, the garment hanger 10 forms a hollow structure and preferably forms a monocoque structure in which the majority of stresses to which the hanger is subject are carried by an outer skin of the hanger. As a result, there is no requirement for internal strengthening ribs, or at least a requirement for less ribs than in the prior art. This improves the aesthetic appeal of the hanger compared with known hangers. In addition, translucent, tinted or transparent materials are suitable for the hanger, since no, or few, disfiguring internal ribs are visible. The absence of internal ribs also avoids sink marks on the surfaces of the hanger which are associated with one-piece moulded hangers of the prior art.

Moreover, the monocoque structure is more resistive to torsional strain so that there is less propensity to torsional twisting of the hanger than in hangers of the prior art. It has been found that a wall thickness of 1.5 millimetres provides sufficient strength. Most importantly, the continuous skin of the hanger has no protruding edge to mark a garment hung on the hanger. The absence of a protruding edge also makes handling the hanger more pleasurable.

Because of the method used to attach the bar to the arms of the hanger, an extruded bar may be used rather than moulded bars of the prior art, although moulded bars are also suitable for use in a hanger according to the invention. The bar may be completely or partially coated with a non-slip, high friction material, such as rubber, in order to grip a garment looped over the bar. Preferably the coating is at least on the top surface of the bar and may also be on at least one of the front and back faces. If the bar is extruded, the rubber coating may be co-extruded with the bar. This allows use of a thinner coating of rubber, which is relatively expensive compared with typical plastics material of the bar, than other methods of applying a non-slip surface.

Although the bar is illustrated as a hollow right circular cylinder, other cross-sectional shapes of bar than circular may be employed. For example, the bar may have a lozenge or semi-circular cross-section with a convex upper surface and a substantially planar lower surface. It will be appreciated that the shapes of the slots, located proximate the extremities of the arms to accommodate opposed ends of the bar, may be chosen according to the cross-sectional shape of the bar.

Skirt loops may optionally be moulded in a controlled cavity in the lower face of the bar, or, whether or not a bar is present, proximate the outer extremities of the arms.

Although a hanger having an upper portions and a lower portion has been described, it will be apparent that the hanger may alternatively have, for example, a front portion and
5 a rear portion joined together. Moreover, the front and rear portions may or may not each form substantially half of the hanger.

Although a garment hanger having two arms has been described, it will be apparent that the invention is equally applicable to a garment hanger having, for example, a single arm.

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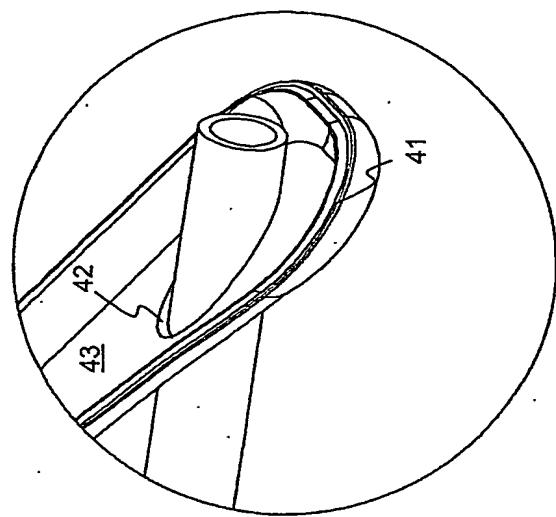


Fig. 2

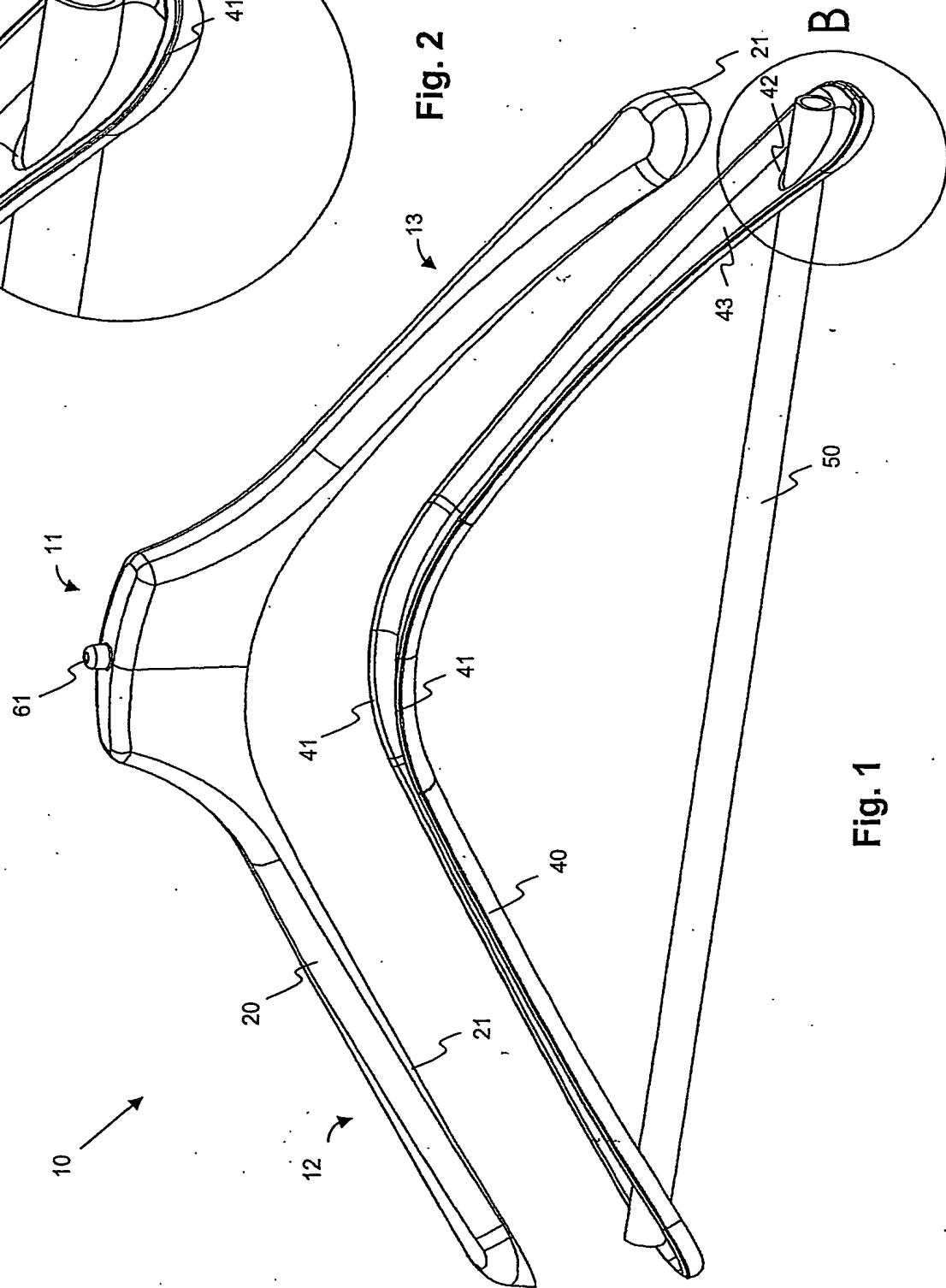


Fig. 1

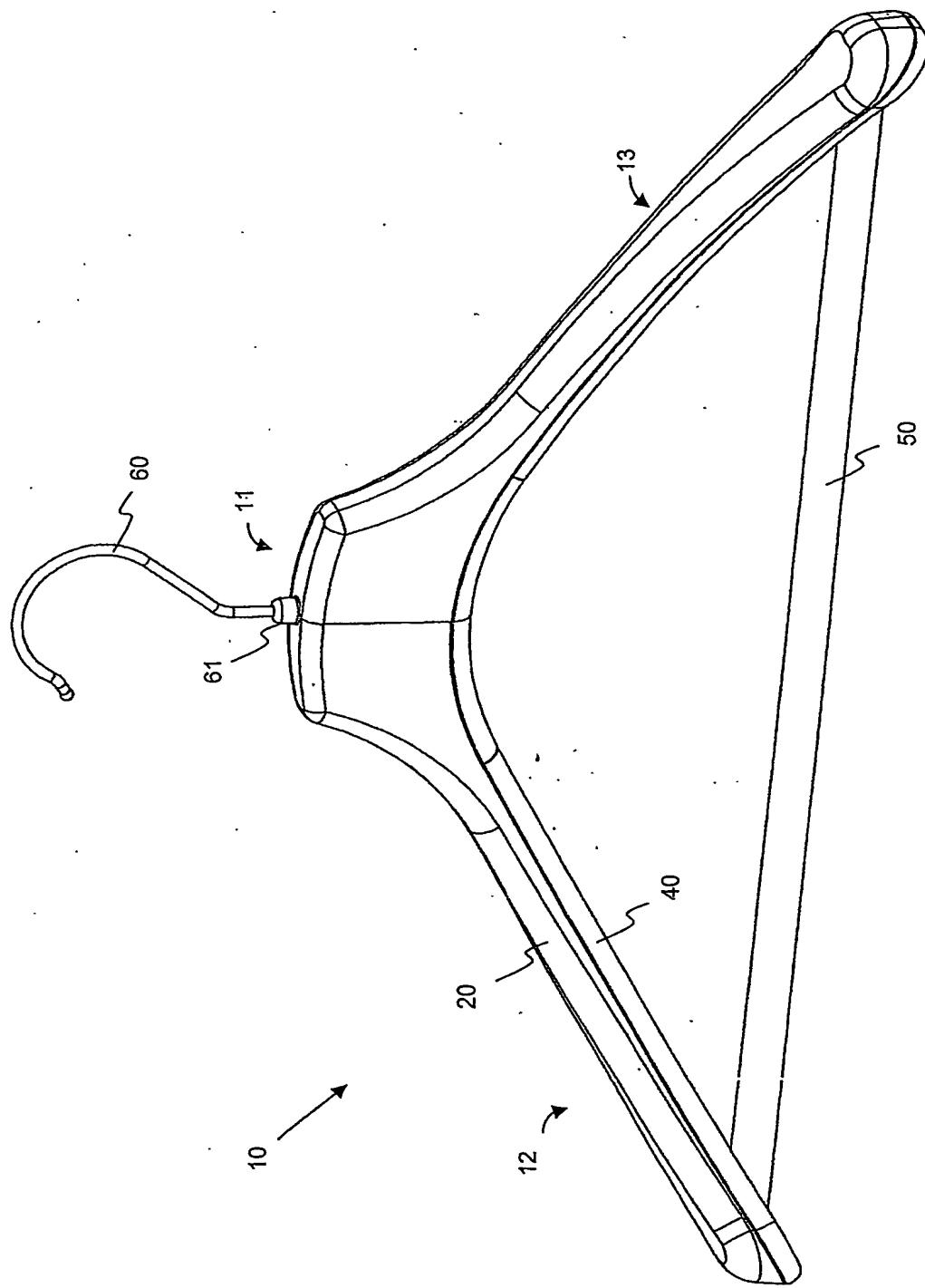
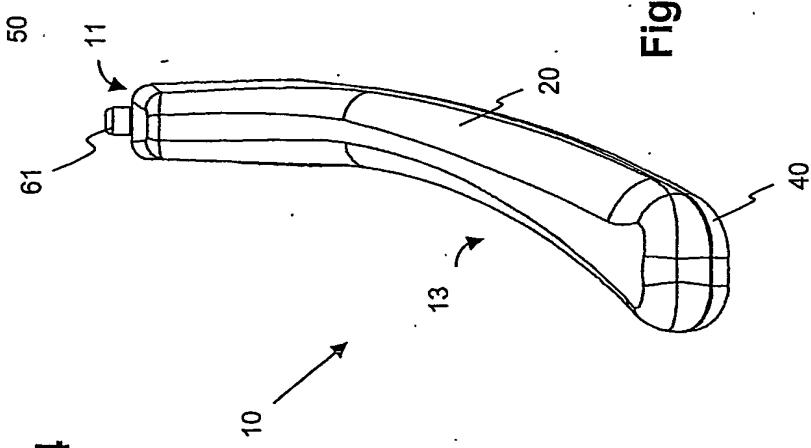
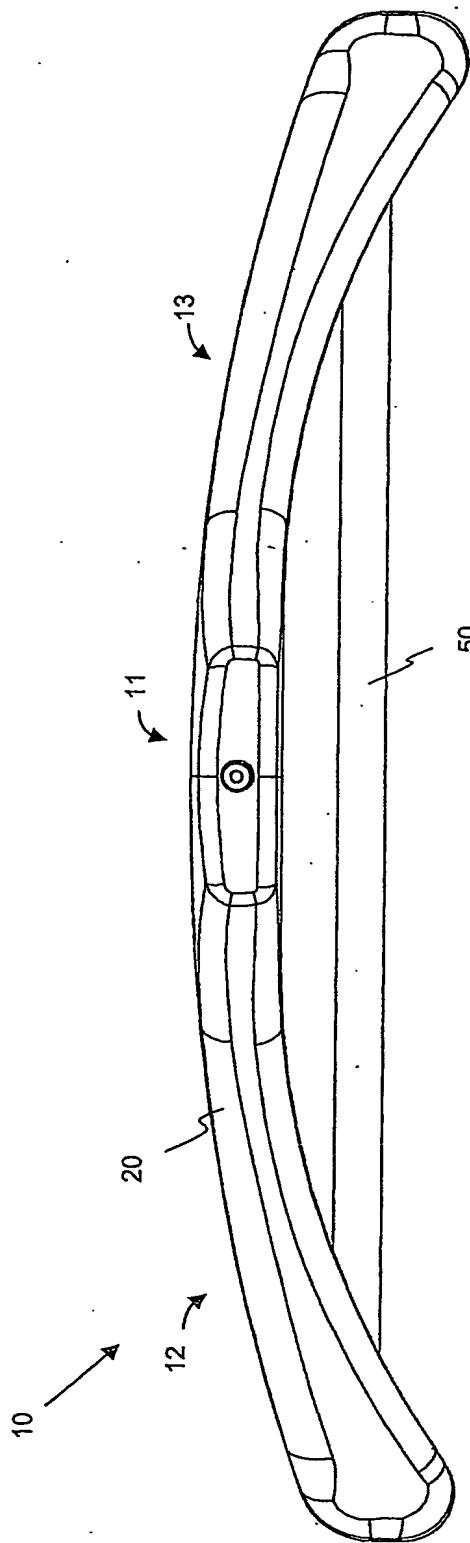


Fig. 3



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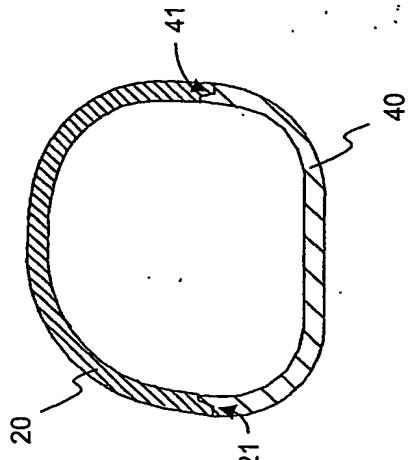


Fig. 7

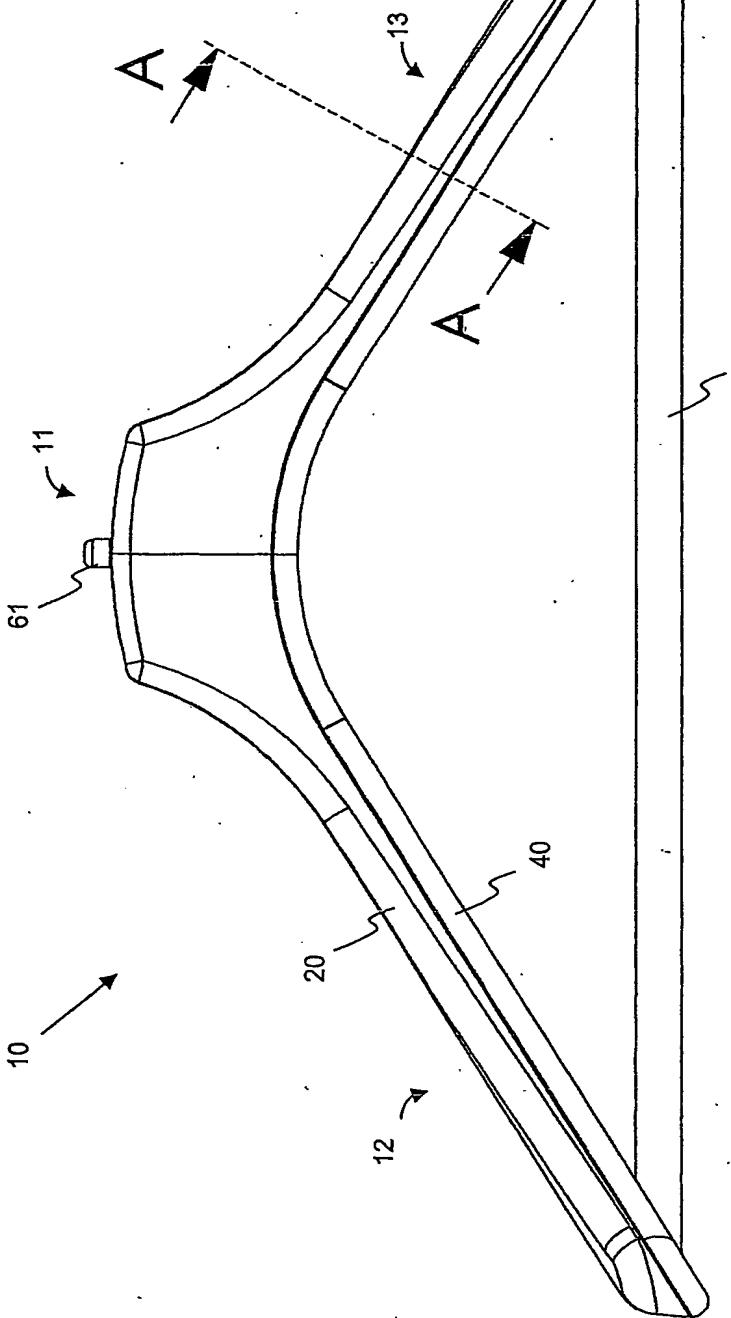


Fig. 6

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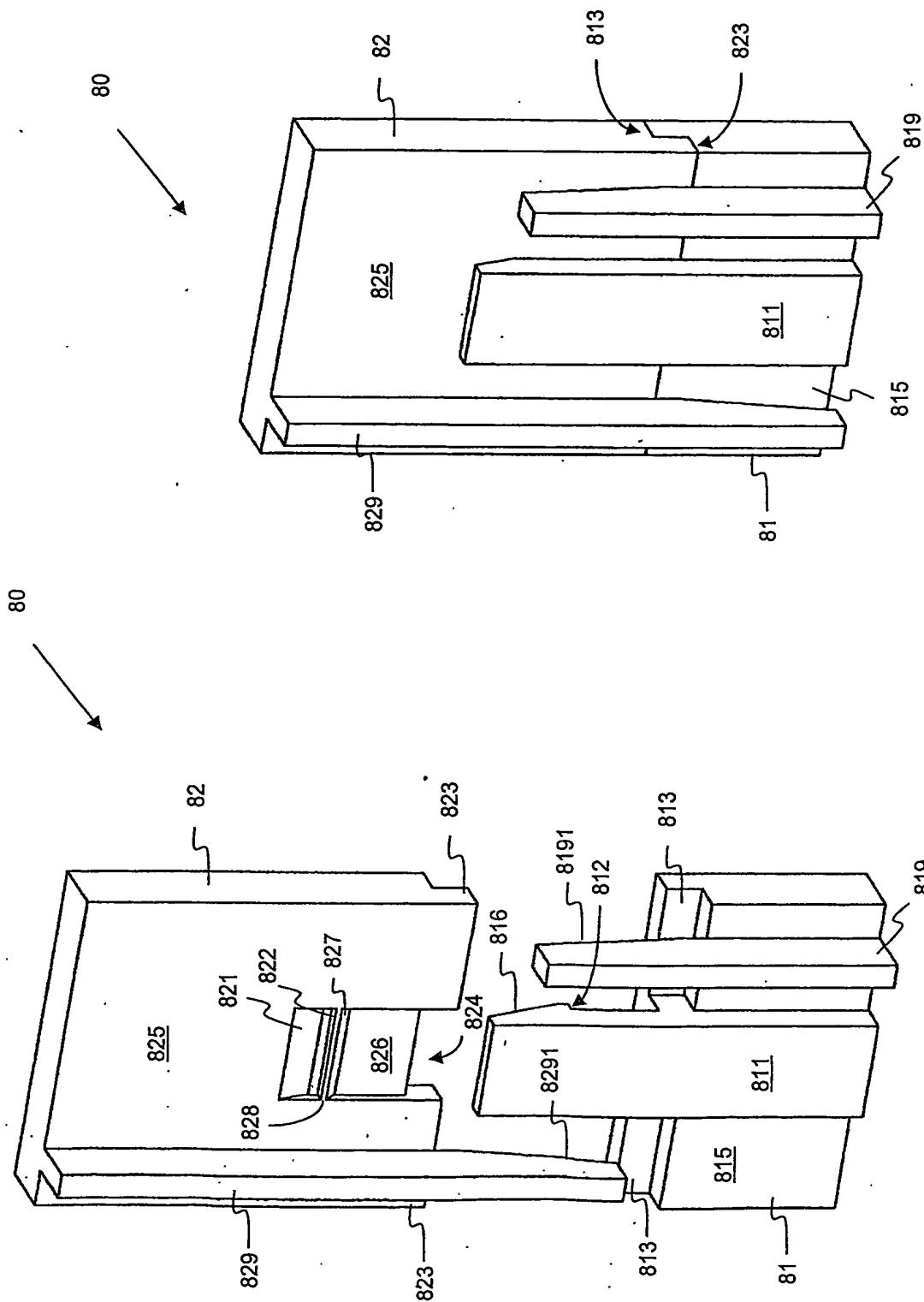


Fig. 9

Fig. 8